Claims

What is claimed is:

1. A measurement system for determining the fly height of a head in a disc system, said device comprising:

a disc having one or more radial grooves patterned in the disc surface;

a head for reading a signal generated when the disc is rotating; and

a signal processing circuit for processing an electrical measurement signal to produce a vertical spacing signal proportional to the vertical spacing between the one or more grooves and the head, wherein the electrical measurement signal is generated when the head passes over each of the one or more grooves.

2. The system according to claim 1 wherein.

3. The system according to claim 1 wherein the disc is made from a material selected from the group comprising aluminum or glass.

4. The system according to claim 1 wherein the signal processing circuit measures the pulse width of a signal induced in the head when the head passes over the groove.

5. The system according to claim 1 wherein the disc includes a plurality of radial grooves.

6. The system according to claim 1 wherein the signal processing circuit comprises circuitry for computing the read back pulse width at 50% amplitude to produce a first time derivative signal proportional to the vertical spacing between the first and the second objects.

7. The system of claim 1 wherein the signal processing circuit includes a circuit for determining fly height by comparing the ratio of the pulse width at fifty percent of the signal amplitude when the head is passed over a groove and compares it to a reference signal generated when the head is not over a groove.

8. The system of claim 1 according to claim 5 wherein each radial groove has a different width and depth.

9. A method for determining fly height in a system having a head flying over a rotating disc, wherein the rotating disc has at least one radial groove, the method comprising the steps of:

measuring a first pulse width of a first signal when the head is flying over the disc in a region not containing a radial groove;

measuring a second pulse width of a second signal when the head has passed over a groove;

comparing the ratio of the pulse widths to determine the height the head is flying over the disc.

10. The method of claim 8 wherein said step of comparing further includes producing a first time derivative signal proportional to the vertical spacing between the head and the surface of the disc.

11. The method of claim 8 further including measuring a third pulse width of a third signal when the head is flying over a second groove.

12. The method of claim 8 further including the step of detecting an electrical defect in the system.

13. The method of claim 11 wherein the fly height being determined is the electrical fly height.

14. A fly height measurement system comprising:

a disc drive including a spindle hub securing a data storage disc, the data storage disc having at least one radial groove in a surface of the disc, the disc drive further including a head disposed adjacent the surface; and

measuring means for determining the fly height between the head and the disc surface utilizing a radial groove.

15. The fly height measurement system according to claim 14 wherein the disc contains a plurality of radial grooves.

16. The fly height measurement system according to claim 14 wherein the groove is 20 nanometers deep and 20 microns wide and the groove is located on a servo area of the disc.

17. The fly height measurement assembly according to claim 14 wherein the disc is made from a material selected from the group comprising aluminum or glass

18. The fly height measurement system according to claim 14 wherein the measuring means measures the pulse width of a signal induced in the transducer when the transducer passes over the groove.

19. The fly height measurement system according to claim 14 wherein said measuring means includes circuitry for computing the read back pulse width at 50% amplitude to produce a first time derivative signal proportional to the vertical spacing between the head and the surface.